



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/506,387

01/25/2005

Joachim Kiefer

3799.1002.000

1646

21/005

7590

09/11/2008

HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

530 VIRGINIA ROAD

P.O. BOX 9133

CONCORD, MA 01742-9133

EXAMINER

PEZZUTO, HELEN LEE

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

09/11/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/506,387

Applicant(s)

KIEFER ET AL.

Examiner

Helen L. Pezzuto

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 August 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16, 18, 19, 21, 24-26, 28, 29, 36 and 40-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16, 18, 19, 21, 24-26, 28, 29, 36 and 40-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8/14/08 has been entered.

Response to Amendment

Applicant's amendment to claims 16, 21, 36, the cancellation of claims 20, 30-35, 37-39, and the addition of claims 40-42 filed in the response on 8/14/08 is acknowledged. Currently, claims 16, 18-19, 21, 24-26, 28-29, 36, and 40-42 are under consideration in this application.

In light of applicant's amendment, Andreola et al. (US-968) is withdrawn as an applied reference because it does not suggest the production of an interpenetrating network derived from in-situ polymerization of the recited monomers in the presence of a polymer film.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 16, 18-19, 21, 24-26, 28-29, 36, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (US-856) or Formato et al. (US-469).

US 6,607,856 to Suzuki et al. discloses a solid polymer electrolyte membrane containing backbone polymer having functional chelate groups such as sulfonic acid and phosphonic acid groups (col. 4, lines 52-56; col. 5, line 11 to col. 6, line 23; col. 8, Example 1; col. 19, Example 13; col. 29-30, Examples 18-19; Fig. 9). In one embodiment, US-857 exemplifies in-situ polymerization of vinylphosphonic acid within a polymer membrane material, forming an interpenetrating polymer network, within the scope of the present claims (col. 19-30, Examples 18-19; Fig. 9). The resultant membrane has a proton-conductivity of greater than or equal to 1×10^{-2} S/cm (col. 5, lines 6-10).

US 6,248,469 to Formato et al. discloses a solid polymer electrolyte membrane having a microporous polymer substrate interpenetrated with an ion-conducting material. Suitable polymer substrates include those containing at least one nitrogen, oxygen or sulfur atom in the recurring units as expressed in the present claims (col. 6, lines 22-50; col. 7, lines 1-29; col. 10, lines 9-18). The preferred ion-conducting material includes the instant polyvinyl sulfonic acid and polyvinylphosphonic acid (col. 7, lines 10-28; col. 14, lines 31-41). The resultant membrane has ion-conductivity of greater than 0.1 S/cm (col. 12, lines 58-64). One of the method embodiments in producing the membrane comprises the step of preparing the substrate polymer and subsequently impregnating the substrate with the chosen monomers, which are then polymerized in-situ to form the composite membrane (col. 8, lines 30-34; col. 17, lines 22-27). Thus, expecting to produce the instant interpenetrating network membrane product.

The references discussed above disclose both vinylsulfonic and vinylphosphonic acid monomers within the scope of the present claims, but does not expressly exemplify the use of both type of monomers as the functional monomers. The examiner is of the position that

Art Unit: 1796

it would have been obvious to one having ordinary skill in the art to employ both vinylphosphonic and vinylsulfonic acid functional monomers for the expected additive result in light of their having been disclosed as suitable functional monomer alternatives by patentees. Absent evidence of unusual or unexpected results, no patentability can be seen in using a mixture of two functional monomers wherein each is used for the same purpose by the patentees. Once the motivation of their selection is provided, discovering their optimum or workable ranges involves only routine skill in the art. Furthermore, the examiner takes notice that the present claims are presented in a product-by-process format. Thus, the patentability of the claimed invention is determined based on the product itself, not the method of making it. It is well settled that if the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process. Accordingly, when applicant's product and that of the prior art appear to be identical or substantially identical, the burden shifts to applicant to provide evidence that the respective products do in fact differ, and that prior art product does not necessarily or

Art Unit: 1796

inherently possess the relied upon characteristics of applicant's claimed product.

Double Patenting

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 16, 18-21, and 24-26, 28-29, 36, and 40-42 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 20-26, 28-31, and 41-50 of copending Application No. 10/506,622. Although the conflicting claims are not identical, they are not patentably distinct from each other because the

instant membrane product encompasses the membrane product recited in the copending application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Response to Arguments

Applicant's amendment and remarks filed 8/14/08 have been fully considered but they are not persuasive. Firstly, applicant urges the substrate polymer of Formato et al. is materially different from the polymer film of the instant invention. This is not found to be compelling as the present claims do not set forth limitations which distinguish the recited polymer film from that of Formato et al. The present claims merely recite a polymer film. The claimed polymer membrane as a whole is within the scope of the composite polymer membrane of Formato et al. Since prior art teaches an embodiment of in-situ polymerization of selected monomers in the presence of a polymer substrate to produce the composite membrane within the scope of the present claims (col. 8, lines 30-34; col. 17, lines 22-27). The examiner is of the position that the instant interpenetrating network membrane product is expected to form because the same method steps are utilized. The

Art Unit: 1796

argument with respect to presence of bulk regions with little or no ion conducting material is irrelevant as the presence claims do not address the presence or absence of these bulk regions. Finally, regarding Suzuki et al. reference, applicant urges that prior art does not disclose the specific amount of vinyl-containing acids and the properties of the present membrane. The examiner respectfully disagrees. Prior art exemplifies 10 wt% of vinylphosphonic acid in Examples 18 and 19, within the scope of the present claims. The properties upon which applicant relies are not recited in the rejected claims. It is well settled that although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. Applicant further urges that Suzuki only show conductivity in the presence of water, not at 160°C as presently claimed. The prior art reference specifically teaches a conductivity of greater than or equal to 1×10^{-2} S/cm, more preferably greater than or equal to 5×10^{-2} S/cm, thus encompass the recited conductivity. The mere silence in conductivity measurement at applicant's temperature does not necessarily preclude it, absent showing of the contrary. Accordingly, the examiner's position is maintained.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen L. Pezzuto whose telephone number is (571) 272-1108. The examiner can normally be reached on 8 AM to 4 PM, Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (571) 272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Helen L. Pezzuto/
Primary Examiner
Art Unit 1796

Application/Control Number: 10/506,387

Page 10

Art Unit: 1796

hlp

Application Number**Application/Control No.**

10/506,387

**Applicant(s)/Patent under
Reexamination**

KIEFER ET AL.

Examiner

Helen L. Pezzuto

Art Unit

1796